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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,434	07/16/2003	Alex A. Behfar	BIN 4	6923

7590 08/03/2005
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EXAMINER

LEE, JOHN D

ART UNIT PAPER NUMBER

2874

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,434

Applicant(s)

BEHFAR, ALEX A.

Examiner

John D. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 2-9 and 16-21 is/are allowed.
6) ☒ Claim(s) 1 and 14 is/are rejected.
7) ☒ Claim(s) 10-13 and 15 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This Office action is responsive to applicant's amendment filed on June 10, 2005. The claim numbering corrections are noted and approved. Claims 1-21 are presently pending.

Claims 14, 15, 18, and 20 are objected to because of the following minor informalities. In each of new claims 14 and 15, it appears that the designations " λ_1 " and " λ_2 " are reversed. Refer to independent claim 1. In claim 18, the phrase "said modulating beam is a tunable laser" is incorrect. A light beam cannot *be* a laser, it can only be *produced by* a laser. The phrase should thus be changed to "said modulating beam is produced by a tunable laser". In claim 20, line 2, "laser" (singular) should actually be "lasers" (plural). Appropriate correction is required.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent Publication 8-186540 to Furukawa. Furukawa discloses an optical wavelength converter comprising a ring laser having at least an input facet (port) and an output facet (port). The input facet (port) is the upper left corner of ring laser 4, and the output facet (port) is the upper right corner of ring laser 4. When activated, the ring laser 4 produces an output beam having a wavelength f_3 as a result of a four wave mixing process between wavelengths f_1 and f_2 (see Figure 1). If an additional wavelength is introduced at the input facet (port), the wavelength f_3 is no longer produced and is thus "switched off". Although the ring laser of Furukawa is not monolithic, the person of

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ordinary skill in the art would have found it obvious to replace it with a monolithic device since it is semiconductor based and one of its stated purposes is “miniaturization”. It is well known in the semiconductor optical arts that one of the best ways to simplify and miniaturize multi-element structures like that of Furukawa is through monolithic fabrication. Monolithic fabrication of the Furukawa ring laser would thus have been obvious. With respect to new claim 14 herein, note that there is no claimed relationship between the “first direction” and the “second direction”, so that they could be the same or different. This claim thus does not differentiate from Furukawa as to directionality of lightwave propagation in the ring laser.

Claims 2-9 and 16-21 are allowed. It is agreed that Furukawa does not disclose or reasonably suggest using a second wavelength input in order to *modulate* the output signal.

Claims 10-13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As indicated in the immediately preceding paragraph, Furukawa does not disclose or reasonably suggest using a second wavelength input in order to *modulate* the output signal.

Applicant’s arguments submitted with the response of June 10, 2005, have been considered but they are not deemed to be persuasive with respect to claims 1 and 14. Applicant argues that Furukawa does not use a second wavelength input in order to modulate the output signal. The Examiner agrees, but this limitation is not present in the rejected claims. Using the second wavelength to “switch off” the output signal is not the same as modulating the output signal. The explanation of the Examiner in the rejection

above shows how Furukawa follows the broadly stated language of claims 1 and 14. Applicant also argues that Furukawa does not have “facets”, apparently believing that this word carries a particular meaning. There is, however, no specific meaning associated with the word “facet” in the optical and electro-optical arts, so one of ordinary skill would interpret the word in accordance with any of its common dictionary definitions. One such definition is “an aspect, a phase” (The American Heritage Dictionary, 2nd College Edition, 1982, Houghton Mifflin Company, Boston, MA). As explained in the rejection, the ring laser of Furukawa has aspects for its input ports and output ports. Applicant further argues that Furukawa does not disclose a “monolithic” ring laser, and has amended claim 1 to recite this feature. The Examiner, however, has clearly indicated in the rejection above why monolithic integration of the Furukawa ring laser would have been obvious. The arguments are thus not persuasive with respect to claims 1 and 14.

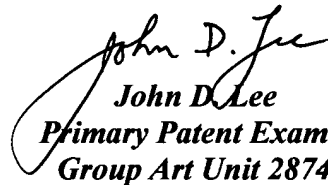
Applicant’s amendment necessitated the new ground(s) of rejection set forth herein (i.e. claim 1 being rejected under 35 U.S.C. § 103(a) rather than under 35 U.S.C. § 102(b)). Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE (3) MONTHS from the mailing date of this action. In the event a first reply is filed within TWO (2) MONTHS of the mailing date of this final action and an advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. § 1.136(a) will be calculated from the mailing

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date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX (6) MONTHS from the mailing date of this action.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874